I hereby certify that this correspondence is being deposited with the United States Postal service as first class mail postage prepaid in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on or before the date noted below my signature.

Daniel B. Ruble
Registration No. 40,794

DATE: August 21, 2008

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Edlein et al	Group Art Unit:	1772
Serial No.:	09/657,679	Examiner:	M. Miggins
Filing Date:	September 8, 2000	Docket No.:	D-43378-01
Title:	PRINTED ANTIFOG FILM		

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Second Declaration of Milton Bowen under Rule 1.132

My name is Milton Bowen. I am an employee of Cryovac, Inc. the assignee of the above-referenced patent application. I am also a named inventor of this patent application.

I currently work as a Senior Development Specialist in Cryovac's Printing and Coating Technology Department in Simpsonville, South Carolina. I have worked in the printing industry for over 30 years. In 1986, Cryovac hired me, and I have since worked as a Cryovac employee for over twenty years in various fields of coating and printing flexible packaging films. Over this time, I have worked and developed expertise with technologies such as offset printing, rotogravure printing, flexographic printing, color matching, test methods development for ink performance evaluations, and print press operating conditions. I was also a training instructor for operators in the packaging printing department.

The following tests were conducted either by me or under my direction or request. The following abbreviations are used to represent the materials:

"AF Film 1" is a 0.6-mil thick, balanced five-layer, antifog film, having outer layers of a blend of ethylene/vinyl acetate and ethylene/α-olefin copolymers. Each of the outer layers of includes about 4% antifog agent comprising ethoxylated nonyphenol, so that the film

includes about 1.3 % antifog agent by weight of the total film. This film is available from Cryovac, Inc. under the trade name SES 320.

"AF Film 2" is a 1-mil thick, balanced five-layer, barrier antifog film, having outer layers of ethylene/α-olefin copolymers. Each of the outer layers of includes about 3 wt.% antifog agent comprising glycerol fatty acid ester and ethoxylated fatty alcohol, so that the film includes about 1.9 % antifog agent by weight of the total film. This film is available from Cryovac, Inc. under the trade name BDF 8050.

"AF Film 3" is a 0.75-mil thick, balanced five-layer, barrier antifog film, having outer layers of a blend of ethylene/vinyl acetate and ethylene/α-olefin copolymers. Each of the outer layers of includes about 4 wt.% antifog agent comprising glycerol fatty acid ester and propylene glycol, so that the film includes about 1.8 % antifog agent by weight of the total film. This film is available from Cryovac, Inc. under the trade name BDF 2060.

"Ink 1" is a solvent-based ink comprising a nitrocellulose/polyurethane blend resin available from Sun Chemical Corporation under the Solitaire Plus trade name. Ink 1 is believed to include wax and silicon as slip agent surface modifiers.

"Ink 2" is a solvent-based ink comprising a nitrocellulose/polyurethane blend resin available from the Siegwerk Corporation under the Seal Tec F11 trade name. Ink 2 is not believed to include any surface modifiers such as slip agents.

"EB 1" is an electron-beam curable ink available from Color Resolutions International LLC under the Safecure Process Blue trade name and the 7JAUE9227 product code. EB1 is believed to include from 10 to 15% of trimethylolpropane polyoxyethylene triacrylate, from 10 to 15% of poly[oxy(methyl-1,2-ethanediyl)].alpha.,.alpha.',.alpha."-1,2,3-propanetriyltris[.omega.-[(1-oxo-2-propeneyl)oxy]-, from 15 to 20% acrylic oligomer, from 1 to 5% 1,6-hexanediol diacrylate, and from 30 to 40% acrylic resin.

"EB 2 is an electron-beam curable ink available from INX International Ink Co. under the INXCure EB Web 335080 Process Blue material description and the 1336287 material number. EB2 is believed to include from 30 to 60 wt.% acrylate oligomer, from 30 to 60 wt.% triacylate ester monomer, from 7 to 13 wt.% hydrous aluminum silicate, and from 1 to 5 wt.% amorphous silica.

The following method was used to prepare each of the samples. A primer was applied to one side of each film using a flexo hand proofer with an anilox roll count of 360 cells per inch and a rubber roll applicator. The viscosity of the primer was 18 seconds (#2 zahn cup). The primer was an ethylene vinyl acetate polymer (EVA) resin-based HAPS-free primer from Sun Chemical Corporation having the Sun Shrink trade name. The primer was then air dried.

Where indicated below, a solvent-based ink was applied over the primer using the same hand proofer as above to form a printed image. The viscosity of the solvent-based inks during application was from 30 to 35 seconds (#2 zahn cup). The solvent-based ink was dried with a couple of passes of a hand held dryer.

Where indicated below, an electron-beam curable ink was applied over the primer using the same hand proofer as above to form a printed image. The electron-beam curable ink was then cured under the following conditions: voltage 80 keV, dose setting: 20 kGy, beam current: 2.7 m Amp, conveyor speed: 50 feet/minute.

The resulting printed antifog film samples had a printed side and a non-printed side. The printed side of each film sample was placed against an equivalent film sample that was not printed. Each of these film pairs were then placed between the platens of a Grasby Specac hydraulic press having a 4-inch diameter platen and subjected to pressure (5 tons reading on the gauge of the hydraulic fluid) for 30 seconds at 38°C. This pressure was meant to simulate storage in a roll form.

The films were then separated. The antifog effectiveness of each sample was determined by assigning an Antifog Rating for the side of the unprinted film sample that had been compressed against the printed side of the corresponding printed film sample. The Antifog Rating was determined using the following method.

A numerical value ("Antifog Rating") was assigned to each sample by visually comparing the sample film, which had been exposed to controlled fogging conditions, to reference standards (see Figs. 1-5 of the present application) showing varying amounts and sizes of moisture condensate droplets on a film. The controlled fogging conditions were as follows. The sample film was secured over a one-pint volume mason jar that had 100 ml (about 10% of its internal volume) filled with water at room temperature. The sealed jar was then placed in a refrigerator at 45°F (7°C).

After the specified amount of time, the exposed sample film was visually compared to the reference standards and assigned the Antifog Rating most closely resembling the appearance of the exposed sample film. "Half" numbers were assigned where it appeared that the sample was between two references (e.g., "3.5").

Five samples of each of the Examples 1-6 were evaluated; and three samples of each of the Samples 1-6 were evaluated. The results are averaged and reported in Table 1 for the antifog effectiveness after the specified time in the refrigerator.

An Antifog Rating of 1 is at the bottom of the scale, essentially lacking any antifog characteristics. An Antifog Rating of 5 indicates excellent antifog characteristics; and under the conditions of this experiment, indicates excellent anti-ghosting performance.

Table 1

	Film	Ink	Antifog Rating @ 4 hours	Antifog Rating @ 24 hours	Antifog Rating @ 32 hours
Sample 1	AF Film 1	Ink 1	1.7	2.5	2.9
Sample 2	AF Film 1	Ink 2	1.8	3.4	3.9
Example 1	AF Film 1	EB 1	4.1	4.8	4.7
Example 2	AF Film 1	EB 2	3.7	4.4	4.4
Sample 3	AF Film 2	Ink 1	1.8	2.8	3.2
Sample 4	AF Film 2	Ink 2	2.0	3.2	3.3
Example 3	AF Film 2	EB 1	4.7	4.8	4.8
Example 4	AF Film 2	EB 2	4.7	4.8	4.8
Sample 5	AF Film 3	Ink 1	1.6	2.0	1.9
Sample 6	AF Film 3	Ink 2	1.8	2.6	2.6
Example 5	AF Film 3	EB 1	3.6	4.3	4.4
Example 6	AF Film 3	EB 2	3.8	4.7	4.7

Two persons evaluated the 4 hour and 32 hour specimens; three persons evaluated the 24 hour specimens.

The Samples 1 through 6 films, which were compressed against the print side of film samples that had a solvent-based ink derived printed image, demonstrated significantly deteriorated antifogging characteristics, as shown by the Antifog Ratings at 32 hours of 2.9, 3.9,

3.2, 3.3, 1.9, and 2.6, respectively. However, Examples 1 through 6, which were compressed against the print side of film samples that had an electron-beam cured ink derived printed image, showed a surprising and unexpectedly good performance and the lack of any significant deterioration of the antifog characteristics, as shown by the Antifog Ratings of 4.7, 4.4, 4.8, 4.8, 4.4, and 4.7, respectively. This indicates that these Example systems would perform well to reduce the tendency of ghosting in the antifog film.

The undersigned Declarant acknowledges that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon. All statements made of the Declarant's own knowledge are true. All statements made on information and belief are believed to be true.

Milton Bowen

MILTON BOWEN

Date: Aug 19, 2008